

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

STEPHEN McCOLLUM, and SANDRA §
McCOLLUM, individually, and STEPHANIE §
KINGREY, individually and as independent §
administrator of the Estate of LARRY GENE §
McCOLLUM, §
PLAINTIFFS §
§
v. § CIVIL ACTION NO.
§ 4:14-cv-3253
§ JURY DEMAND
BRAD LIVINGSTON, JEFF PRINGLE, §
RICHARD CLARK, KAREN TATE, §
SANDREA SANDERS, ROBERT EASON, the §
UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §
DEFENDANTS §

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 18

Scanned by McMILLIAN, CAROLYN D. in facility GURNEY (ND) on 09/22/2011 06:49

Patient Account 20005972-517
 Med. Rec No (0150)1726849
 Patient Name JAMES, KENNETH W
 Age 52 YRS DOB 11/25/58 Sex M Race B
 Admitting Dr OUTSIDE TDCJ
 Attending Dr OUTSIDE TDCJ
 Date / Time Admitted 08/17/11 0811
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 Fax (409) 772-5883
Pathology Report

172 6849

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00174

AUTOPSY INFORMATION:

Occupation: INMATE Birthplace: UNKNOWN Residence: TEXAS
 Date/Time of Death: 8/13/2011 4:16 Date/Time of Autopsy: 8/17/2011
 Pathologist/Resident: WALKER/XU Service: TDC CONTRACT
 Restriction: NONE

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409)772-2858.

FINAL AUTOPSY DIAGNOSIS

I. Body as a whole: Clinical history of hyperthermia, hypertension, depression, back injury, and sudden unexpected death, status post unsuccessful cardiopulmonary resuscitation C1,2
 A. Heart: Cardiomegaly (weight 500 g) A3
 B. Heart, ventricle, left: Hypertrophy A3
 C. Heart, left ventricle, posterior wall: focal patchy myocardial necrosis A3
 D. Skeletal muscle: Rhabdomyolysis A3
 E. Coronary arteries: Moderate atherosclerosis A3
 F. Aorta, infrarenal segment: Mild atherosclerosis A3
 1. Left anterior descending artery: 50% stenosis with atherosclerotic plaque, 2.5 cm from origin A3
 2. Left circumflex artery: 50% stenosis with atherosclerotic plaque, 1.8 cm from origin A3
 3. Right coronary artery: 30% stenosis with atherosclerotic plaque, 2.0 cm from the origin A3
 G. Lung, bilateral: Congestion with edema (weight, right 760 g; left 700 g) A3
 H. Lung, right: Aspiration pneumonia A3
 I. Ribs: Fracture with hemorrhage, consistent with cardiopulmonary resuscitation A5
 1. Left 6th rib: Fracture A5

II. Other findings: A5
 A. Adrenal gland, right: Cortical adenoma A5
 B. Prostate: Mild nodular benign hyperplasia A5
 C. Colon, serosa: Fibrotic adhesion A5
 D. Vertebrae, lumbar: Spurs A5
 E. Ileum: Meckel's diverticulum A5

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.
 IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;
 3-contributory COD; 4-concomitant, significant; 5-incidental ***

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CLINICAL SUMMARY:

The decedent was a 52-year-old black male TDCJ inmate with a past medical history of hypertension (BP, 170/107 mmHg), depression, back injury (2002, 2004), and drug abuse (marijuana, cocaine). The list of his medications was: Hydrochlorothiazide, Propranolol, Enalapril, Lisinopril, Cyclobenzaprine (muscle relaxant), Neurontin (Gabapentin), Ultram (opioid analgesic), and Naproxen (nonsteroidal anti-inflammatory drug). On 8/12/2011, he was in clinic for physical examination. He had not been to the pill window to pick up medication since arrival to the Gurney Unit on 8/10/2011. His vital signs were: BP 170/107 mmHg, P 108, R 18, T 96.7. He was treated with Clonidine 0.25 mg at 1155, and his BP went down to 129/74 mmHg with pulse 100 at 1230 on 8/12/2011.

He was found unresponsive with temperature 108 deg F (42.2 deg C) in his cell at 0300 on 8/13/2011. His skin was dry and pale. CPR was initiated, and he was intubated. He was transported to Palestine Regional Medical Center with CPR in progress at 0352. Cardiac monitor showed asystole. CBC at 0357 showed WBC 8.1 x 10³ / l, RBC 5.11 x 10⁶ / l, HGB 14.9 g/dl, MCV 88.5, and PLT 94 x 10³ / l (PLT clumps). He was given epinephrine and sodium bicarbonate. The patient was unable to be revived and was pronounced dead at 0416 on 8/13/2011.

A complete autopsy was performed on 8/17/2011.

YX /da
09/08/11

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GROSS DESCRIPTION:

EXTERNAL EXAMINATION: The decedent, identified by left toe tag as "James, Kenneth", is a well nourished, well developed, black male, measuring 179 cm in length, and weighing approximately 254 lbs according to recent medical records. The general appearance is consistent with the reported age of 52 years. The body is unclothed. Rigor mortis is present in the arms and legs, and there is fixed lividity on the dorsal surface. The head is normocephalic with essentially no scalp hair anteriorly and with short black and gray scalp hair posteriorly.

The irides are brown with equal pupils measuring 0.4 cm in diameter. The corneas are cloudy, the conjunctivae are congested, and the sclerae are slightly congested and edematous. The nares are patent with no exudate. The patient is partially edentulous. The trachea is midline. Palpation of the neck reveals no lymphadenopathy or thyromegaly.

Body hair distribution is normal male. The chest diameters are normally proportioned. The abdomen is slightly protuberant. Lymph nodes in the supraclavicular, axillary and inguinal regions are not palpable.

The back is unremarkable. The arms and legs are unremarkable. The genitalia are normal male for the age

The following evidence of medical intervention is present.

1. There is a nasogastric tube in the right nose
2. An intubation tube is in the mouth with holder around the head
3. There are four EKG leads, two on upper chest and another two on left lateral abdominal wall
4. Two AED pads on the chest
5. There is IV line on the right side of the neck
6. Triple lumen IV catheter in the right groin area
7. There is an intraosseous infusion line on the right lower leg

The following marks and scars are present:

1. A well healed longitudinal linear scar on the middle abdominal wall, measuring 30 cm in length with 1.5 cm in width.
2. A well healed oval scar on the left knee medially measuring 1.5 x 0.5 cm.
3. Another oval shaped well healed scar located on the left lower leg medially, measuring 2 x 1.7 cm.
4. A healed scar on the right upper leg laterally, measuring 5 x 2 cm.
5. Two well healed longitudinal linear scars on the lower back, one 7 cm in length, 1 cm in width and another one 3 cm in length and 1 cm in width.

There are multiple tattoos on the body: Tattoo of letters on the upper front

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GROSS DESCRIPTION:

chest and the letters are Lurlene with two stars on each side; the second tattoo is a design of heart located on the left upper arm laterally; the third tattoo is on the left forearm laterally with the following letters "LEXAS"; the fourth tattoo is naked female upper part of body which is located at right upper arm anteriorly; the sixth tattoo is with the following letters "EBVCK" which is located on the right forearm posteriorly; the seventh tattoo is on the back with the letters "Jims and Mary" which is located on the upper back.

INTERNAL EXAMINATION: The body is opened using a standard Y shaped incision, to reveal a 2.5 cm thick panniculus and the thoracic and abdominal organs in the normal anatomic positions. The left pleural cavity contains 200 ml of bloody fluid, and the right contains 70 ml of similar fluid.

The pericardial sac contains approximately 10 ml of clear yellowish fluid.

The thymus is largely replaced by fat. No thromboemboli are found in the large pulmonary arteries.

The abdominal cavity contains no fluid. There are moderate peritoneal adhesions with ascending colon, transverse colon and descending colon adherent to the abdominal wall and to the stomach and mesenteric connective tissue.

CARDIOVASCULAR SYSTEM: Heart. The heart weighs 500 gm (normal male 270-360 gm). The pericardium is essentially smooth and glistening with small areas of hemorrhage (possibly due to CPR). There is a moderate amount of epicardial fat. The left and right coronary ostia are identified in the normal locations. The heart is examined by transverse serial slicing of four sections from apex and then opening following the flow of blood. The myocardium is homogeneous red-brown with mottled myocardium in the posterior wall of the left ventricle. The endocardium is normal. The left ventricular wall is 1.5 cm thick (normal 1.0-1.8 cm) at the junction of the posterior papillary muscle and free wall, and the right ventricle is 0.3 cm thick (normal 0.25-0.3 cm) 2 cm below the pulmonic valve annulus, anteriorly. The valve leaflets and cusps are white, delicate and membranous.

Valve circumferences measured on the fresh heart are: tricuspid valve 11.5 cm (normal 12-13 cm), pulmonic valve 8 cm (normal 8.5-9.0 cm), mitral valve 10 cm (normal 10.5-11.0 cm), and aortic valve 8 cm (normal 7.7-8.0 cm). The foramen ovale is closed.

Blood vessels: The coronary circulation is right dominant based on the origin of the posterior descending artery. The apex is supplied by the left anterior descending artery. The coronary arteries reveal moderate atherosclerosis involving left anterior descending artery with 50% stenosis located 2.5 cm from the origin, left circumflex artery with 50% stenosis located 1.8 cm from

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GROSS DESCRIPTION:

the origin and right coronary artery with 30% stenosis located 2.0 cm from the origin. The aorta exhibits mild atherosclerosis in the arch and aortic root segments. The infrarenal aortic segment exhibits mild atherosclerosis, with less than 10% surface area involved with plaques. The celiac, superior and inferior mesenteric, and renal arteries are unremarkable with minimal atherosclerosis. The bilateral iliac arteries exhibit mild atherosclerosis. The superior and inferior vena cavae and their branches are normal. The portal vein is normal

RESPIRATORY SYSTEM: Larynx and trachea: The laryngeal mucosa is normal, and the vocal cords are normal with no lesions. The tracheal mucosa is normal.

Lungs: The right lung weighs 760 gm (normal male 435 gm), and the left 700 gm (normal male 385 gm). The pleural surfaces are smooth and transparent with a moderate amount of carbon deposition. There are subpleural bullae on the pleural surface of right upper lobe. Lividity is present on the dorsal surface. The left lung is inflated with formalin before sectioning. The bronchial and vascular trees are normal. The hilar nodes are normal. The right and left lung parenchyma is dark red with fine porosity, and without consolidation.

GASTROINTESTINAL TRACT: Esophagus: The esophageal mucosa is normal. The esophagus is firmly anchored to the diaphragm.

Tongue: The tongue has a finely granular surface with no coating.

Stomach and duodenum: The stomach contains about 100 ml of bloody dark red fluid. The mucosa is dark red.

The duodenal mucosa is normal.

Pancreas: The pancreas has a normal conformation. It is tan-yellow, normally lobulated and firm in consistency. The pancreatic duct is patent.

Biliary tract: The gallbladder serosa is gray-green and glistening. The gallbladder contains about 15 ml of green bile and with no stones. The mucosa is green and velvety. The cystic duct, hepatic duct, and common duct are normal, and bile is expressed freely from the ampulla on compressing the gallbladder.

Liver: The liver weighs 1790 gm (normal male 1400-1900 gm). The liver surface is smooth with a tan-pale area. Glisson's capsule is transparent and glistening. The liver is serially sliced to reveal a homogeneous lobular pattern. The cut surface is normal without lesions.

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GROSS DESCRIPTION:

Small bowel: The serosa is smooth and transparent with no adhesions. The bowel is normal throughout. The lumen contains green-gray digested food stuff. The mucosa is normal.

Large bowel: The serosa is smooth and transparent with adhesions to the peritoneal wall, stomach and mesentery. The lumen contains loosely formed stool. The mucosa is normal.

The appendix is grossly normal.

Rectum and anus: The rectum and anus are normal.

Reticulo-endothelial System: Spleen: The spleen weighs 120 gm (normal 125-195 gm). It is normal in shape with decreased size. The cut surface is soft and red-purple with no lesions.

Lymph nodes: Lymph nodes in the mediastinum, abdomen and retroperitoneum are normal.

Spine: Multiple spurs are identified in the lower lumbar spine.

Bone marrow: The thoracic and lumbar spine marrow is grossly normal. The trabeculae and cortical bone are of normal density.

GENITO-URINARY SYSTEM: Kidneys: The kidneys are symmetric. The right kidney weighs 160 gm and the left 140 gm (normal male 125-170 gm). The capsules strip with ease to reveal dark red cortical surfaces. The cut surfaces reveal well demarcated cortico-medullary junctions. The pelvis and calyces are normal. The renal pelvic mucosa is normal. Perihilar adipose tissue is moderate.

Ureters: The ureters are normal throughout their length, measuring 4.4 cm in maximal external diameter. They are probe-patent into the bladder.

Bladder: The bladder mucosa is trabeculated. The trigone is normal. There is a small area of submucosal hemorrhage, measuring 1.5 x 1.0 cm

Prostate: The prostate is normal in size, color, consistency, and texture. Serial slicing reveals normal granular surfaces with small nodular architecture. The seminal vesicles are normal.

Testes: The right testis weighs 18.5 gm, and the left 22.3 gm (normal 20-25 gm). The tunica albuginea are tan-white, smooth and glistening. The cut surfaces are soft and tan-yellow, with no lesions.

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GROSS DESCRIPTION:

ENDOCRINE SYSTEM: Thyroid: The thyroid weighs 23.8 gm (normal 10-22 gm), and is red-brown, bosselated and glistening. The cut surface is homogeneous, translucent, red-brown with no lesions

Parathyroids: Several brown, soft fragments of tissue are collected as possible parathyroids.

Adrenal glands: The right adrenal gland weighs 8.9 gm and the left 8.5 gm (normal 5-6 gm). The adrenal glands have a normal conformation and position. Serial slicing in the transverse plane reveals 1 mm thick firm golden yellow/brown cortices, with gray soft medullae and one golden yellow nodule in the right adrenal gland measuring 1.7 x 1.5 x 1 cm

BRAIN AND SPINAL CORD: The scalp, calvarium, base of the skull and dura mater are normal. The brain weighs 1380 gm (normal male 1200-1400 gm). The gyri and sulci display a normal pattern. The leptomeninges are unremarkable. The circle of Willis, basilar and vertebral arteries show no atherosclerosis. No indentation/herniation of the cingulate gyri, uncus or molding of the cerebellar tonsils are noted. The brain is fixed in formalin for later examination by a neuropathologist (see neuropathology report).

SPINAL CORD: The grossly normal spinal cord is fixed in formalin for later examination by a neuropathologist.

PITUITARY GLAND: The grossly normal pituitary gland is fixed in formalin for subsequent examination by a neuropathologist.

Deltoid muscle, psoas muscle and gastrocnemius muscle: The skeletal muscles are grossly normal and samples are collected.

Blood and vitreous samples are collected. Vitreous sample was submitted for analysis of electrolytes and osmolarity measurement. Samples of liver, kidney, heart, lung and spleen were frozen for potential further examination.

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MICROSCOPIC DESCRIPTION:

Heart, right and left ventricle, Slides 10-15, (6 H&E) (consultation: Dr. Boor for slide 13, posterior wall of left ventricle):
 In the posterior wall of left ventricle, there is focal contraction-band myocardial necrosis in a pattern of patchy-widespread (not associated with ischemic distribution). Cardiomyocytes of left ventricle exhibit hypertrophy. There is no fibrosis in the left and right ventricle.

Left anterior descending coronary artery, Slide 27, (1 H&E):
 There is 50% occlusive atherosclerotic plaque.

Left circumflex coronary artery, Slide 28, (1 H&E):
 There is 50% occlusive atherosclerotic plaque.

Right coronary artery, Slide 29, (1 H&E):
 There is 30% occlusive atherosclerotic plaque.

Lung, left, Slides 16 and 17 (2 H&E, 1 Von-Kossa, 1 DAPI):
 The architecture is preserved and demonstrates congestion. In the inner surface of the arterioles and veins, there is a layer of accumulated autolyzed nucleic acids (hematoxylin stained). It is Von-Kossa negative for calcium but DAPI stain positive for nucleic acids which is suggestive of denatured DNA in the vessel. Anthracosis is noted. No inflammation or thrombi are noted.

Lung, right, Slides 18-20 (3 H&E, 1 Acid Fast, 1 GMS and 1 Gram stain):
 The architecture is preserved and demonstrates congestion with anthracosis. There is focal hemorrhage, fibrinous exudates and macrophages in the alveolar spaces. There is lymphocytic infiltration and foreign body reaction with multinucleated giant cell formation in the right upper lobe suggesting aspiration pneumonia. Acid fast and GMS stains are negative for organisms. Gram stain shows postmortem bacterial growth in the tissue.
 No thrombus is noted.

Kidneys, bilateral, Slides 3 and 4, (2 H&E):
 There is severe autolysis, but the general architecture is preserved. There are a few completely sclerotic glomeruli. There is interstitial hemorrhage and intraglomerular hemorrhage. The wall of the arterioles is thickened suggesting arteriosclerosis.

Adrenal glands, Slides 1 and 2, (2 H&E):
 There is a cortical adenoma in right adrenal gland. There is autolysis but normal architecture without pathologic change in left adrenal gland.

Liver, Slide 5, (1 H&E):
 There is mild steatosis. Lymphocytic infiltration in the portal triads. A Russell body is noted in the triad.

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Spleen, Slide 6, (1 H&E):
There is severe congestion. The red pulp is expanded due to congestion, and the white pulp is normal. There is arteriosclerosis.

Pancreas, Slide 7, (1 H&E):
There is severe autolysis but normal architecture without pathologic change.

Thyroid, Slide 7, (1 H&E):
There is no pathologic change.

Parathyroid, Slide 25, (1 H&E):
One piece of parathyroid gland is identified, and there is no pathologic change.

Testes, Slides 1 and 2, (2 H&E):
There is active spermatogenesis, and it is appropriate for given age

Prostate, Slide 21, (1 H&E):
Benign prostatic hyperplasia.

Urinary bladder, Slide 21, (1 H&E):
There is autolysis. No pathologic change is noted.

Tongue, Slide 8, (1 H&E).
No pathologic change is noted.

Esophagus, Slide 8, (1 H&E):
There is mucosal autolysis but otherwise no pathologic change.

Stomach, Slide 8, (1 H&E):
There is severe autolysis, but the architecture is preserved.

Gallbladder, Slide 9, (1 H&E):
There is severe autolysis with no pathologic change.

Ileum, Slide 9, (1 H&E):
There is severe autolysis with no pathologic change.

Colon, Slide 9 (1 H&E):
There is severe autolysis with no pathologic change.

Bone marrow, Slide 25, (1 H&E).
Cellularity is 40%. Myeloid, erythroid, and thrombocytic lineages are identified.

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Deltoid muscle, Slide 22, (1 H&E) (consultation: Dr. Campbell).
Focal hypercontracted and eosinophilic rhabdomyocytes are noted.

Psoas muscle, Slide 23, (1 H&E) (consultation: Dr. Campbell):
Focal hypercontracted and eosinophilic rhabdomyocytes are noted.

Gastrocnemius muscle, Slide 24, (1 H&E, 1 Masson's Trichrome) (consultation:
Dr. Campbell).
Focal hypercontracted myocytes, eosinophilic myocytes, and disorganization of
sarcomeres with loss of cross striations indicating myofiber injury. Masson's
trichrome stain emphasizes loss of cross striation in necrotic myofibers, with
fragmentation in focal myofibers.

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Autopsy No.: AU-11-00174

CLINICOPATHOLOGIC CORRELATION:

The decedent was a 52-year-old black male TDCJ inmate with a past medical history of hypertension, depression, back injury (2002, 2004), and drug abuse (marijuana, cocaine). The list of his medications was: Hydrochlorothiazide, Propranolol, Enalapril, Lisinopril, Cyclobenzaprine (muscle relaxant), Neurontin (Gabapentin), Ultram (opioid analgesic), and Naproxen (nonsteroidal anti-inflammatory drug, NSIAD). On 8/12/2011, he was treated with Clonidine 0.25 mg at 1155 for BP 170/107 mmHg, and his BP went down to 129/74 mmHg with pulse 100/min at 1230. He was found unresponsive with temperature 108 deg F (42.2 deg C) in his cell at 0300 on 8/13/2011. His skin was dry and pale. CPR was initiated and he was intubated. CBC at 0357 showed WBC 8.1 x 10³/ 1, RBC 5.11 x 10⁶ / 1, HGB 14.9 g/dl, MCV 88.5, and Platelet 94 x 10³ / 1 (PLT clumps). He was given epinephrine and sodium bicarbonate. The patient was unable to be revived and was pronounced dead at 0416 on 8/13/2011. A complete autopsy was performed on 8/17/2011.

At autopsy, the aorta revealed mild atherosclerosis, and the coronary arteries exhibited moderate atherosclerosis. The heart demonstrated cardiomegaly and left ventricular hypertrophy. There was focal patchy contraction-band myocardial necrosis in the posterior wall of the left ventricle. Both lungs were congested. Right lung showed focal hemorrhage with aspiration pneumonia. Gastrocnemius muscle demonstrated focal hypercontracted myocytes, eosinophilic myocytes, and disorganization of sarcomeres with loss of cross striation indicating myofiber injury.

Based on this patient's body temperature (42.2 deg C), advanced autolysis of organs, focal patchy myocardial necrosis, rhabdomyolysis, decreased platelet count and no other cause of death. Environmental hyperthermia related heat stroke is considered though toxicology tests and vitreous analysis are still pending. Heat stroke (HS) is a serious and potentially life-threatening condition defined as a core body temperature > 40.6 deg C. Two forms of HS are recognized, classic heat stroke, usually occurring in very young or elderly persons, and exertional heat stroke, more common in physically active individuals. An elevated body temperature and neurologic dysfunction are necessary but not sufficient to diagnose HS. Associated clinical manifestations such as extreme fatigue; hot dry skin or heavy perspiration; nausea; vomiting; diarrhea; disorientation to person, place, or time; dizziness; uncoordinated movements; and reddened face are frequently observed. Potential complications related to severe HS are acute renal failure, disseminated intravascular coagulation, rhabdomyolysis, acute respiratory distress syndrome, acid-base disorders, and electrolyte disturbances. Long-term neurologic sequelae (varying degrees of irreversible brain injury) occur in approximately 20% of patients. The prognosis is optimal when HS is diagnosed early and management with cooling measures and fluid resuscitation and electrolyte replacement begins promptly. The prognosis is poorest when treatment is delayed > 2 hours (1).

Patient Name JAMES, KENNETH W
 Patient Location AUTOPSY
 Room/Bed -
 Printed Date/Time 09/12/11 - 0717

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Continued....

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Patient Account 20005972-517
 Med. Rec No (0150)1726849
 Patient Name JAMES, KENNETH W
 Age 52 YRS DOB 11/25/58 Sex M Race B
 Admitting Dr OUTSIDE TDCJ
 Attending Dr OUTSIDE TDCJ
 Date / Time Admitted 08/17/11 0811
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00174

CLINICOPATHOLOGIC CORRELATION:

A heat wave is defined as three or more consecutive days of air temperatures > 32.2 deg C. Exposure to excessive heat may cause illness, as heat directly induces tissue injury, the severity of which is dependent upon the critical thermal maximum (i.e., the level and duration of core heating). The critical thermal maximum in humans is a body temperature of 41.6 deg C to 42 deg C for between 45 minutes and 8 hours. At extreme body temperatures (eg, 49-50 deg C), all cellular structures are destroyed, and cellular necrosis occurs in < 5 minutes (1).

The precise incidence of HS is unknown for many reasons. First, in the United States, heat-related death is not a reportable condition in any state. Second, the definition of HS varies, resulting in underreporting of HS cases. Third, many heat-related illnesses and deaths are unrecognized as such and are not reported. Therefore, the reported incidence of HS in the United States varies from 17.6 to 26.5/100,000. Why some cases progress to HS and others do not is unclear, but it appears that genetic polymorphisms may determine susceptibility; the likely candidate genes include those that encode cytokines, coagulation proteins, and heatshock proteins. Mortality rates for HS range from 10% to 70%, depending on the severity and age of the patient. The greatest numbers of deaths occur when treatment is delayed for >2 hours (1).

This patient had several risk factors of HS: lack of air conditioning, chronic illness, and use of diuretics (Hydrochlorothiazide) and beta blockers (Propranolol). Studies have shown that diuretics and beta blockers may impair thermoregulation (2). In addition, the patient was treated with Clonidine for his hypertension one day before his death. A research group has demonstrated that Clonidine induces hyperthermia in experimental rats at high ambient temperature (3). Confirmation of dehydration was attempted via vitreous humor electrolyte analysis, but the prolonged postmortem interval and putrefaction complicated the assessment.

The cardiovascular system is frequently compromised in HS. The initial response is hyperdynamic, followed by hypotension, tachycardia and tachydysrhythmia (4). There is focal patchy myocardial necrosis in this patient. One study has showed that a subpopulation of HS victims will develop myocardial ischemia (5).

In summary, it is our opinion that the manner of death is natural. The immediate cause of death is most likely environmental hyperthermia-related classic heat stroke though toxicology tests and vitreous humor tests are still pending. Results of the toxicology tests and vitreous humor analysis will be reported as an addendum.

Patient Name JAMES, KENNETH W
 Patient Location AUTOPSY
 Room/Bed -
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Continued....

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Scanned by MCMILLIAN, CAROLYN D. in facility GURNEY (ND) on 09/22/2011 06:50

Patient Account 20005972-517
Med. Rec No (01501726849
Patient Name JAMES, KENNETH W
Age 52 YRS DOB 11/25/58 Sex M Race B
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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00174

CLINICOPATHOLOGIC CORRELATION:

References:

- 1.T. Yeo, Heat Stroke, A comprehensive review, AACN Clinical Issues, 2004; 15 (2): 280-293
- 2.Prevention and treatment of heat injury. Med Lett Drugs Ther. 2003; 45:58-60.
- 3.E. Mogilnicka, V. Klimek, G. Nowak, and A. Czyrak, Clonidine and beta-agonists induce hyperthermia in rats at high ambient temperature. J. Neural Transmission 1985; 63, 223-235
- 4.H. Grogan and PM. Hopkins. Heat stroke: implications for critical care and anesthesia. Br J. Anaesth. 2002;88:700-707.
- 5.J.E. Dematte, K. OMara, J. Bueschler. Near-fatal heat stroke during the 1995 heat wave in Chicago. Ann Intern Med. 1998;129:173-181.

YX /da
09/08/11

DAVID H. WALKER, M.D., PATHOLOGIST

(Electronic Signature)

09/09/11

Patient Name JAMES, KENNETH W
Patient Location AUTOPSY
Room/Bed -
Printed Date / Time 09/12/11 - 0717

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END OF REPORT

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

STEPHEN McCOLLUM, and SANDRA §
McCOLLUM, individually, and STEPHANIE §
KINGREY, individually and as independent §
administrator of the Estate of LARRY GENE §
McCOLLUM, §
PLAINTIFFS §
§
v. § CIVIL ACTION NO.
§ 4:14-cv-3253
§ JURY DEMAND
BRAD LIVINGSTON, JEFF PRINGLE, §
RICHARD CLARK, KAREN TATE, §
SANDREA SANDERS, ROBERT EASON, the §
UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §
DEFENDANTS §

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 19

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Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128380
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/15/11 0828
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112 8380

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

AMENDED COMMENT:

The last paragraph of the Clinicopathologic Correlation has been amended as follows:

In summary, it is our opinion that the manner of death is natural. The immediate cause of death is most likely environmental hyperthermia-related classic heat stroke. Toxicology tests and vitreous humor tests did not establish an alternative diagnosis.

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409)772-2858.

AMENDED DIAGNOSIS

The diagnosis remains unchanged.

DAVID H. WALKER, M.D., PATHOLOGIST
 DAVID H. WALKER, M.D., PATHOLOGIST
 09/28/11

(Electronic Signature)

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.
 IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;
 3-contributory COD; 4-concomitant, significant; 5-incidental ***

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 11/17/11 - 1110

Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128880
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/15/11 0828
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Pathology Report

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

AUTOPSY INFORMATION:

Occupation: INMATE Birthplace: UNKNOWN Residence: TEXAS
 Date/Time of Death: 8/12/2011 04:36 Date/Time of Autopsy: 8/15/2011
 Pathologist/Resident: WALKER/XU Service: TDC CONTRACT
 Restriction: NONE

 The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409) 772-2858.

FINAL AUTOPSY DIAGNOSIS

I. Body as a whole: Clinical history of hypertension, hyperlipidemia, obesity, exposure to high ambient temperature (the unit afternoon temperature, 96°F ~ 100°F), sudden unexpected death, and status post unsuccessful cardiopulmonary resuscitation	C1,2
A. Heart: Cardiomegaly (weight 450 g)	A3
B. Heart, left ventricle: Hypertrophy	A3
C. Lungs, bilateral: Congestion and mild edema (weight, right 500 g; left 390 g)	A3
D. Lung, right: Acute food aspiration	A3
E. Bronchus, right: Food aspiration (small amount)	A3
F. Larynx: Food aspiration (small amount)	A3
G. Trachea: Food aspiration (small amount)	A3
H. Coronary arteries: Mild atherosclerosis	A3
II. Other findings:	
A. Spleen: Splenomegaly	A4
B. Thyroid: Chronic thyroiditis	A5
C. Gallbladder: Cholelithiasis	A5

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
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Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128880
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
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Pathology Report

UNIVERSITY OF TEXAS MEDICAL BRANCH AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

CLINICAL SUMMARY:

The decedent was a 36-year-old black male TDCJ inmate with a past medical history of hypertension (BP, 142-162/90-94 mmHg), hyperlipidemia and obesity and obesity. His medications were: Medications: A洛dipine, Enalapril, Pravastatin and hydrochlorothiazide. On 8/11/2011, the patient complained of pain of his right arm. He went to bed at 2030, which was earlier than usual.

The patient was seen lying on his abdomen by an officer at 0200 on 8/12/2011 but he was not awakened at that time. He was found unresponsive, lying on his abdomen with no respiration in his bed in the cell at 0330 on 8/12/2011. The room had a fan blowing on him. No body temperature was taken. CPR was initiated. He was transported to Otto Kaiser Memorial Hospital at 0434 with CPR in progress. Cardiac monitor showed asystole with no vital signs. Attempted intubation and placement of IV lines were unsuccessful. Cyanosis was present on the face and extremities. Rigor mortis was present in the extremities with dependent lividity in the skin. Despite attempted cardiopulmonary resuscitation, the patient was unable to be revived and was pronounced dead at 0436 on 8/12/2011. The temperature (open to outside) at 1530 in the unit of Connally was 96 deg F on 8/11/2011 and 100 deg F on 8/12/2011.

The body was picked up by Carnes Funeral Home at 1130 on 8/12/2011 and delivered to UTMB at 1630 the same day. A complete autopsy was performed on 8/15/2011.

YX /da
 08/29/11

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date/Time: 11/17/11 - 1110

Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128380
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

GROSS DESCRIPTION:

EXTERNAL EXAMINATION: The decedent, identified by right big toe band as "Marcus, Kelly Don", is a well nourished, well developed, black male, measuring 188 cm in length, and weighing approximately 275 lbs according to recent medical records. The general appearance is older than the reported age of 36 years. The body is unclad. Rigor mortis is present in the arms and legs, and there is fixed lividity on the dorsal surfaces. The body is moderately to severely decomposed. The head is normocephalic with essentially no scalp hair.

The irides are brown with equal pupils measuring 0.4 cm in diameter. The corneas are slightly cloudy, the conjunctivae are congested, and the sclerae are edematous and congested. The nares are patent with bloody exudate. The upper and lower teeth are present. The trachea is midline. Palpation of the neck reveals no lymphadenopathy or thyromegaly.

Body hair distribution is normal male. The chest diameters are normally proportioned. The abdomen is protuberant. Lymph nodes in the supraclavicular, axillary and inguinal regions are not palpable.

The back is unremarkable. The arms and legs are unremarkable. The scrotum is enlarged (back to normal size after opening). The penis is normal male for the age.

The following evidence of medical intervention is present: There is no medical intervention present.

The following marks and scars are present: There is an abrasion on the right lower chest, measuring 1.2 x 0.5 cm in size. There are two abrasions observed on the right elbow posteriorly, measuring 0.7 x 0.3 cm and 0.4 x 0.3 cm in size respectively. There are two similar tattoos around each wrist. There is small tattoo on the left middle arm laterally. There is a dry skin area on the left middle chest measuring 6 x 4 cm.

INTERNAL EXAMINATION: The body is opened using a standard Y shaped incision, to reveal a 6 cm thick panniculus and the thoracic and abdominal organs in the normal anatomic positions. The chest cavity is relatively small due to abdominal organs elevating the diaphragm. The left pleural cavity contains no fluid, and the right contains 60 ml of bloody fluid.

The pericardial sac contains 10 ml of clear fluid.

The thymus is largely replaced by fat. No thromboemboli are found in the large pulmonary arteries.

The abdominal cavity contains 200 ml of yellow clear fluid. There are minimal

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
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Patient Account: 20005972-517
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 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
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Pathology Report



Autopsy Office (409) 772-2858

Autopsy No.: AU-11-00171

GROSS DESCRIPTION:
 peritoneal adhesions.

CARDIOVASCULAR SYSTEM: Heart: The heart weighs 450 gm (normal male 270-360 gm). The pericardium is essentially smooth. There is scant amount of epicardial fat anteriorly. The left and right coronary ostia are identified in the normal locations. The heart is examined by transverse serial slicing of four sections from the apex and then opening following the flow of blood. The myocardium is homogeneous red-brown with no scars present. The endocardium is normal. The left ventricular wall is 1.5 cm thick (normal 1.0-1.8 cm) at the junction of the posterior papillary muscle and free wall, and the right ventricle is 0.3 cm thick (normal 0.25-0.3 cm) 2 cm below the pulmonic valve annulus, anteriorly. The valve leaflets and cusps are white, delicate and membranous.

Valve circumferences measured on the fresh heart are: tricuspid valve 12.5 cm (normal 12-13 cm), pulmonic valve 8 cm (normal 8.5-9.0 cm), mitral valve 11.2 cm (normal 10.5-11.0 cm), and aortic valve 7.5 cm (normal 7.7-8.0 cm). The foramen ovale is closed.

Blood vessels: The coronary circulation is right dominant based on the origin of the posterior descending artery. The apex is supplied by the left anterior descending artery. The coronary arteries reveal only minimal atherosclerosis. The aorta exhibits minimal to mild atherosclerosis. The infrarenal aortic segment exhibits minimal atherosclerosis. The celiac, superior and inferior mesenteric, and renal arteries are unremarkable with no atherosclerosis. The superior and inferior vena cavae and their branches are normal. The portal vein is normal.

RESPIRATORY SYSTEM: Larynx and trachea: There is scant food debris found in the larynx and trachea. The laryngeal mucosa is normal, and the vocal cords are normal with no lesions. The tracheal mucosa is normal.

Lungs: The right lung weighs 500 gm (normal male 435 gm), and the left 590 gm (normal male 385 gm). The pleural surfaces of the right and left lungs are smooth and transparent with no obvious carbon deposition. Lividity is present in the dorsal surface. There is scant food debris identified in the bronchus of the right lung. The left lung is inflated with formalin before sectioning. The hilar nodes are normal. The lung parenchyma is dark red with fine porosity, and there is no consolidation.

GASTROINTESTINAL TRACT: Esophagus: The esophageal mucosa is normal with no lesions.

Tongue: The tongue has a finely granular surface with no coating.

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 11/17/11 - 1110

Patient Account: 20005972-517
 Med. Rec. No.: (0160)1128380
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
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Autopsy No.: AU-11-00171

GROSS DESCRIPTION:

Stomach and duodenum: The stomach contains about 700 to 800 ml of fresh food. The mucosa is normal.

The duodenal mucosa is normal.

Pancreas: The pancreas has a normal conformation. It is tan-yellow, normally lobulated and firm. The pancreatic duct is patent.

Biliary tract: The gallbladder serosa is gray-green and glistening. The gallbladder contains about 10 ml of gray-green bile and with no stones. The mucosa is green and velvety with strawberry-like yellow granules. The cystic duct, hepatic duct, and common duct are normal, and bile is expressed freely from the ampulla on compressing the gallbladder.

Liver: The liver weighs 1100 gm (normal male 1400-1900 gm). The liver surface is serially sliced to reveal a homogeneous lobular pattern with fine cysts (due to decomposition). The cut surface shows no focal abnormalities.

Small Bowel: The serosa is smooth and transparent with no adhesions. The bowel is normal throughout. The lumen contains pink-brown digested food stuff. The mucosa is normal.

Large bowel: The serosa is smooth and transparent with no adhesions. The lumen contains loosely formed stool. The mucosa is normal.

The appendix is grossly normal.

Rectum and anus: The rectum and anus are normal.

Reticulo-endothelial System: Spleen: The spleen weighs 290 gm (normal 125-195 gm). It is normal in shape with increased size. The cut surface is soft and red-purple with no lesions.

Lymph nodes: Lymph nodes in the mediastinum, abdomen and retroperitoneum are normal.

Spine: The spine is normal.

Bone marrow: The thoracic and lumbar spine marrow is grossly normal. The trabeculae and cortical bone are normal density.

GENITO-URINARY SYSTEM: Kidneys: The kidneys are symmetric. The right kidney weighs 120 gm and the left 130 gm (normal male 125-170 gm). The capsules strip with ease to reveal dark red cortical surfaces. The cut surface reveals poorly demarcated corticomedullary junctions. The pelvis and calyces

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: _____
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Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128380
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
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Pathology Report

EXCELSIOR MEDICAL LABORATORIES

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

GROSS DESCRIPTION:

are normal. The renal pelvic mucosa is normal. Perihilar adipose tissue is moderate.

Ureters: The ureters are normal throughout their length, measuring 0.4 cm in maximal external diameter. They are probe-patent into the bladder.

Bladder: The bladder is normal. The trigone is normal.

Prostate: The prostate is normal in size, color, consistency, and texture. Serial slicing reveals normal granular surfaces without distinct architecture. The seminal vesicles are normal.

Testes: The right testis weighs 30 gm, and the left 32.4 gm (normal 20-25 gm). The tunica albuginea are tan-white, smooth and glistening. The cut surfaces are soft and tan-yellow, with no lesions.

ENDOCRINE SYSTEM: Thyroid: The thyroid weighs 16.9 gm (normal 10-22 gm), and is red-brown, bosselated and glistening. The cut surface is homogeneous, translucent, red-brown with no lesions.

Parathyroids: Several brown soft fragments of tissue are collected as possible parathyroids.

Adrenal glands: The right adrenal gland weighs 6.1 gm and the left 7.6 gm (normal 5-6 gm). The adrenal glands have a normal conformation and position. Serial slicing in the transverse plane reveals 1 mm thick firm golden yellow/brown cortices, with gray soft medullae and no lesions.

BRAIN AND SPINAL CORD: The scalp, calvarium, base of the skull and dura mater are normal. The brain weighs 1540 gm (normal male 1200-1400 gm). The gyri and sulci display a normal pattern without edema. The leptomeninges are unremarkable. The circle of Willis, basilar and vertebral arteries show no atherosclerosis. No indentation/herniation of the cingulate gyri, unci or molding of the cerebellar tonsils are noted. The brain is fixed in formalin for later examination by a neuropathologist (see neuropathology report).

SPINAL CORD: The grossly normal spinal cord is fixed in formalin for later examination by a neuropathologist.

PITUITARY GLAND: The grossly normal pituitary gland is fixed in formalin for subsequent examination by a neuropathologist.

Blood and vitreous samples were submitted for toxicologic tests. Samples of liver, kidney, heart, lung, and spleen, were frozen for potential further examination.

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 11/17/11 - 1110

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Patient Account: 20005972-517
Med. Rec. No.: (0150)1128380
Patient Name: MARCUS, KELLY DON
Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
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RECEIVED - FINAL AUTOPSY REPORT

Autopsy Office (409) 772-2858

Autopsy No.: AU-11-00171

GROSS DESCRIPTION:

YX /da
08/17/11

Patient Name: MARCUS, KELLY DON
Patient Location: AUTOPSY
Room/Bed: -
Printed Date / Time: 11/17/11 - 1110

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Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128380
 Patient Name: MARCUS, KELLY DON
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UNIVERSITY OF TEXAS MEDICAL BRANCH

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

MICROSCOPIC DESCRIPTION:

Heart, right and left ventricle, Slides 11-15, (5 H&E):
 There is severe autolysis. In the anterior, lateral, and posterior left ventricle and the septum, cardiomyocytes exhibit hypertrophic. There are no contraction band necroses or fibrosis in the left and right ventricle. There is postmortem bacterial growth in the tissue.

Lung, left, Slides 16 and 17 (2 H&E):
 The architecture is preserved and demonstrates congestion. No inflammation or thrombi are noted. There is postmortem bacterial growth in the tissue.

Lung, right, Slides 18-20 (3 H&E):
 The architecture is preserved and demonstrates congestion with focal edema. There is vegetable matter in the bronchus and alveolar spaces without inflammatory reaction. Macrophages are seen in the alveolar spaces. No thrombus is noted. There is postmortem bacterial growth in the tissue.

Kidney, bilateral, Slides 3 and 4, (2 H&E):
 There is severe autolysis, but the general architecture is preserved without pathologic change. There is postmortem bacterial growth in the tissue.

Adrenal gland, Slides 1 and 2, (2 H&E):
 There is autolysis but normal architecture without pathologic change.

Liver, Slide 5, (1 H&E):
 There is severe autolysis, but the general architecture is preserved. There is postmortem bacterial growth in the tissue.

Spleen, Slide 6, (1 H&E):
 There is severe autolysis. The red pulp is congested, and the white pulp reveals mild atrophy.

Pancreas, Slide 22, (1 H&E):
 There is severe autolysis but normal architecture without pathologic change.

Thyroid, Slide 7, (1 H&E):
 There is severe autolysis. There are diffuse aggregates of lymphocytes with lymphoid follicle formation. The pathologic change is suggestive of chronic thyroiditis.

Parathyroid, Slide 24, (1 H&E):
 No parathyroid is identified, but six pieces of lymph nodes show no pathologic change.

Testes, Slides 1 and 2, (2 H&E):
 There is active spermatogenesis.

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 11/17/11 - 1110

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Patient Account: 20005972-517
 Med. Rec. No.: (0150)1128380
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/15/11 0828
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Pathology Report

Autopsy Office (409)772-2858

Autopay No.: AU-11-00171

MICROSCOPIC DESCRIPTION:

Prostate, Slide 10, (1 H&E):

There is severe autolysis. No pathologic change is noted.

Urinary bladder, Slide 23, (1 H&E):

There is severe autolysis. No pathologic change is noted.

Tongue, Slide 21, (1 H&E):

No pathologic change is noted.

Esophagus, Slide 8, (1 H&E):

There is mucosal autolysis, but otherwise no pathologic change.

Stomach, Slide 8, (1 H&E):

There is mucosal autolysis, but otherwise no pathologic change.

Gallbladder, Slide 8, (1 H&E):

There is severe autolysis, but otherwise no pathologic change.

Jejunum, Slide 9, (1 H&E):

There is severe autolysis, but otherwise no pathologic change.

Sigmoid colon, Slide 9 (1 H&E):

There is severe autolysis, but otherwise no pathologic change.

Bone marrow, 25, (1 H&E):

There is severe autolysis. Cellularity is 50%. There is postmortem bacterial growth in the tissue.

YX /da
 08/29/11

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 11/17/11 - 1110

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Patient Account: 20005972-517
 Med. Rec. No.: (0150)1126380
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/15/11 0828
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 Fax (409) 772-5683

Pathology Report

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

CLINICOPATHOLOGIC CORRELATION:

The decedent was a 36-year-old black male TDCJ inmate with a past medical history of hypertension (BP, 142-162/90-94 mmHg), hyperlipidemia and obesity. His medications were: A洛dipine, Enalapril, Pravastatin and hydrochlorothiazide. On 8/11/2011, the patient complained of pain in his right arm. He went to bed at 2030, which was earlier than usual. He was found unresponsive, lying on his abdomen without respirations in his bed in the cell at 0330 on 8/12/2011. No body temperature was taken (the unit afternoon temperature, 96 OF - 100 OF). Cardiopulmonary resuscitation (CPR) was initiated. Rigor mortis was present in the extremities with dependent lividity in the skin. Despite attempted CPR, the patient was unable to be revived and was pronounced dead at 0436 on 8/12/2011. A complete autopsy was performed on 8/15/2011.

At autopsy, the heart revealed cardiomegaly with left ventricular hypertrophy. The aorta revealed no significant atherosclerosis, and the coronary arteries were patent with mild atherosclerosis. Food aspiration was found in the larynx, trachea, and bronchus. Histology showed that most of the organs were severely autolytic with postmortem bacterial growth. Both lungs were congested with mild edema. There is acute food aspiration in the alveolar spaces with no inflammatory reaction.

According to this patient's clinical history and autopsy findings, environmental hyperthermia related heat stroke is considered likely though toxicology tests are still pending. Heat stroke (HS) is a serious and potentially life-threatening condition defined as a core body temperature $> 40.60^{\circ}\text{C}$. Two forms of HS are recognized, classic heat stroke, usually occurring in very young or elderly persons, and exertional heat stroke, more common in physically active individuals. An elevated body temperature and neurologic dysfunction are necessary but not sufficient to diagnose HS. Associated clinical manifestations such as extreme fatigue; hot dry skin or heavy perspiration; nausea; vomiting; diarrhea; disorientation to person, place, or time; dizziness; uncoordinated movements; and reddened face are frequently observed. Potential complications related to severe HS are acute renal failure, disseminated intravascular coagulation, rhabdomyolysis, acute respiratory distress syndrome, acid-base disorders, and electrolyte disturbances. Long-term neurologic sequelae (varying degrees of irreversible brain injury) occur in approximately 20% of patients. The prognosis is optimal when HS is diagnosed early and management with cooling measures and fluid resuscitation and electrolyte replacement begins promptly. The prognosis is poorest when treatment is delayed > 2 hours.

A heat wave is defined as three or more consecutive days of air temperatures $> 32.20^{\circ}\text{C}$. Exposure to excessive heat may cause illness, as heat directly induces tissue injury, the severity of which is dependent upon the critical thermal

Patient Name: MARCUS, KELLY DON
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Patient Account: 20005972-517
 Med. Rec. No.: (0180)1128980
 Patient Name: MARCUS, KELLY DON
 Age: 36 YRS DOB: 04/28/75 Sex: M Race: B
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00171

CLINICOPATHOLOGIC CORRELATION:

maximum (i.e., the level and duration of core heating). The critical thermal maximum in humans is a body temperature of 41.6 deg C to 42 deg C for between 45 minutes and 8 hours. At extreme body temperatures (e.g., 49-50 deg C), all cellular structures are destroyed, and cellular necrosis occurs in < 5 minutes.

The precise incidence of HS is unknown for many reasons. First, in the United States, heat-related death is not a reportable condition in any state. Second, the definition of HS varies, resulting in underreporting of HS cases. Third, many heat-related illnesses and deaths are unrecognized as such and are not reported. Therefore, the reported incidence of HS in the United States varies from 17.6 to 26.5/100,000. Why some cases progress to HS and others do not is unclear, but it appears that genetic polymorphisms may determine susceptibility; the likely candidate genes include those that encode cytokines, coagulation proteins, and heat shock proteins. Mortality rates for HS range from 10% to 70%, depending on the severity and age of the patient. The greatest numbers of deaths occur when treatment is delayed for >2 hours.

This patient had several risk factors of HS: lack of air conditioning, chronic illness, obesity, and use of diuretics (hydrochlorothiazide). Studies showed that diuretics may impair thermoregulation. Confirmation of dehydration was attempted via vitreous humor electrolyte analysis, but prolonged postmortem intervals and putrefaction complicated the assessment.

In summary, it is our opinion that the manner of death is natural. The immediate cause of death is most likely environmental hyperthermia-related classic heat stroke though toxicology tests and vitreous humor tests are still pending.

References:

- 1.Theresa Pluth Yeo, Heat Stroke, A Comprehensive Review, AACN Clinical Issues, 2004; 15 (2): 280-293
- 2.Prevention and treatment of heat injury. Med Lett Drugs Ther. 2003; 45:58-60.

YX /da
 08/29/11

DAVID H. WALKER, M.D., PATHOLOGIST

(Electronic Signature)

09/02/11

Patient Name: MARCUS, KELLY DON
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 11/17/11 - 11:10

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

STEPHEN McCOLLUM, and SANDRA §
McCOLLUM, individually, and STEPHANIE §
KINGREY, individually and as independent §
administrator of the Estate of LARRY GENE §
McCOLLUM, §
PLAINTIFFS §
§
v. § CIVIL ACTION NO.
§ 4:14-cv-3253
§ JURY DEMAND
BRAD LIVINGSTON, JEFF PRINGLE, §
RICHARD CLARK, KAREN TATE, §
SANDREA SANDERS, ROBERT EASON, the §
UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §
DEFENDANTS §

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 20

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: ALVARADO, DANIEL
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted : 08/25/11 0754
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Pathology Report

1517660

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00179

AUTOPSY INFORMATION:

Occupation: INMATE Birthplace: UNKNOWN Residence: TEXAS
 Date/Time of Death: 8/20/2011 10:29 Date/Time of Autopsy: 8/25/2011
 Pathologist/Resident: STOUT/KOSHY Service: TDC CONTRACT
 Restriction: NONE

The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409) 772-2858.

FINAL AUTOPSY DIAGNOSIS

- I. Body as a whole: Sudden death of uncertain cause, but consistent with environmental hyperthermia (postmortem axillary temperature of 105.2 F, simultaneous environmental temperature of 91 F) C1.2
- II. Cardiovascular system:
 - A. Coronary arteries: No significant abnormalities identified A5
 - B. Heart, myocardium: No significant abnormalities identified A5
- III. Lungs, bilateral: No thromboemboli identified A5
- IV. Other findings:
 - A. Body as a whole: No evidence of infection identified A5
 - B. Body as a whole: Seropositive for HIV under treatment A5
 - C. Body as a whole: No evidence of significant acute injury is identified A5

COMMENT #1: Advanced decomposition of the body compromised the assessment

COMMENT #2: The cause of death is judged to be environmental hyperthermia, and the manner of death is judged to be accidental.

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.
 IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;
 3-contributory COD; 4-concomitant, significant; 5-incidental ***

Plaintiffs' MSJ Appx. 206
 Continued....

Patient Name: ALVARADO, DANIEL
 Patient Location: AUTOPSY
 Room/Bed: -
 Printed Date / Time: 10/06/11 - 1304

Page: 1

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
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 Attending Dr.: OUTSIDE TDCJ
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409) 772-2858

Autopsy No.: AU-11-00179

CLINICAL SUMMARY:

The patient was a 44 year old Hispanic male TDCJ inmate with a past medical history of HIV under treatment and schizophrenia who was found unresponsive in his cell at 0920 on 8-20-11. The patient was taken to the infirmary where he was found to have dilated fixed pupils, no pulse and no respirations, and cardiopulmonary resuscitation was started. His skin was noted to be hot. Axillary body temperature taken at 0928 showed a reading of 105.2 degrees Fahrenheit. Ice packs were placed under his arms and on his back and legs. Emergency Medical Services arrived and transported the patient to Palestine Regional Medical Center where he was pronounced dead at 1029 on 8-20-11. A complete autopsy was done on 8-25-11 at the University of Texas Medical Branch.

JTK/da
08/29/11

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
 Printed Date / Time: 10/06/11 - 1304

Plaintiffs' MSJ Appx. 207
Continued....

Page: 2

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00179

GROSS DESCRIPTION:

EXTERNAL EXAMINATION: The decedent, identified by left ankle ID as "Daniel Alvarado", is a well developed, lean Hispanic male TDCJ inmate, measuring 67 inches in length, and weighing 156 lbs. according to TDCJ records on 7/19/11. The general appearance is consistent with the reported age of 44 years. Accompanying the body are a pair of white boxer shorts and white t-shirt. Rigor mortis is present in the arms and legs. The head is normocephalic with 0.5 cm of brown hair and prominent frontal balding. There is marked lividity of the head, face, anterior neck and shoulders, with marked marbling of the neck and shoulders which extends down the upper arms changing color from purple to bluish green. The entire back and sides down to the buttocks have extensive purple marbling. The abdomen has marked greenish staining over both sides that extends up to the axilla on the right, and also involves the center of the sternum. Similar areas are seen focally over the anterior surface of the right thigh and lower leg. There are several hypopigmented skin lesions on the abdomen, the largest of which measures 0.5 x 0.3 cm.

The irides are brown in color with equal pupils measuring 0.3 cm in diameter. The corneas are cloudy, the conjunctivae are pale, and the sclerae are white. The nares are patent with no exudate. Dentition is normal. Buccal membranes are normal. The trachea is midline. Palpation of the neck reveals no lymphadenopathy or thyromegaly.

Body hair distribution is normal male with sparse hair over the lower legs. The chest diameters are normally proportioned. The abdomen is slightly protuberant. Lymph nodes in the supraclavicular, axillary and inguinal regions are not palpable. The genitalia are normal male circumcised.

The following evidence of medical intervention is present:

1. An endotracheal tube in place along with a blue and white collar
2. EKG leads on the left upper chest (one is right next to the left nipple and the other two are 4 cm below the first one). There is an EKG lead on the left lateral upper arm, the right lateral upper arm, and the left lower quadrant of the abdomen.
3. There is an IV line in the right lower arm
4. There is an IV line in the left antecubital fossa

INTERNAL EXAMINATION: The body is opened using a standard Y shaped incision, to reveal a 3 cm thick panniculus and the thoracic and abdominal organs in the normal anatomic positions. There is greenish black discoloration of the muscles of the anterior neck and the right costal margin. There are fibrous adhesions from the right upper lobe of the lung to the chest wall. The left and right pleural cavities contain no fluid. The pleural surfaces have marked anthracotic deposits. The anterior surfaces of the heart and lungs have a peculiar grayish pink tinge that may represent decomposition.

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
 Printed Date / Time: 10/06/11 - 1304

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted : 08/25/11 0754
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FINAL AUTOPSY REPORT

Autopsy Office (409) 772-2858

Autopsy No.: AU-11-00179

GROSS DESCRIPTION:

The pericardial sac contains 10 ml of clear orange fluid.

No rib fractures are noted.

The thymus is largely replaced by fat. No thromboemboli are found in the large pulmonary arteries.

The abdominal cavity contains no fluid. There are no adhesions. The colon is dark brown in color except for the sigmoid which appears normal

CARDIOVASCULAR SYSTEM: Heart: The heart weighs 290 gm (normal male 270-360), shape and size are normal. The pericardium is normal. The heart is examined by transverse serial slicing; opening following the flow of blood. The remaining myocardium is without lesions. The endocardium is markedly hemolysed. The left ventricular wall is 1.4 cm thick (normal 1.0-1.8 cm) at the junction of the posterior papillary muscle and free wall, and the right ventricle is 0.4 cm thick (normal 0.25-0.3 cm) 2 cm below the pulmonic valve annulus, anteriorly. The valve leaflets and cusps have only age related changes.

Valve circumferences measured on the fresh heart are: tricuspid valve 12 cm (normal 12-13 cm), pulmonic valve 8.2 cm (normal 8.5-9.0 cm), mitral valve 11 cm (normal 10.5-11.0 cm), and aortic valve 8.5 cm (normal 7.7-8.0 cm). The foramen ovale is closed. The heart is very decomposed, collapsing into an almost flat soft mass when placed on the table.

Blood vessels: The coronary circulation is right dominant based on the origin of the posterior descending artery. The apex is supplied by the left anterior descending artery. The coronary arteries are opening longitudinally to reveal minimal atherosclerosis. The aorta exhibits minimal atherosclerosis. The celiac, superior and inferior mesenteric, renal and iliac arteries are normal. The superior and inferior vena cavae and their branches are normal. The portal vein is normal.

RESPIRATORY SYSTEM: Larynx and trachea: The laryngeal mucosa is normal, and the vocal cords are normal. The tracheal mucosa is normal.

Lungs: The right lung weighs 710 gm (normal male 435), and the left 690 gm (normal male 385). The pleural surfaces are smooth with anthracotic pigment bilaterally. The left lung is inflated with formalin before sectioning. The bronchial and vascular trees are normal. The hilar nodes are normal. The lung parenchyma is dark blue and smooth. Both lungs appear to be decomposed, but no other lesions are seen.

GASTROINTESTINAL TRACT: Esophagus: The esophageal mucosa is normal

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
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Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
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Autopsy No.: AU-11-00179

GROSS DESCRIPTION:

Tongue: The tongue is normal.

Stomach and duodenum: The stomach contains 20 ml of chyme which is dark green. The mucosa is normal.

The duodenal mucosa is normal.

Pancreas: The pancreas is normal. The pancreatic duct is patent.

Biliary tract: The gallbladder serosa is normal. The gallbladder contains 20 ml of green bile with no stones. The mucosa is normal. The cystic duct, hepatic duct, and common duct are normal, and bile is expressed freely from the ampulla on compressing the gallbladder.

Liver: The liver weighs 1550 gm (normal male 1400-1900). The liver is serially sliced to reveal no lesions.

Small Bowel: The bowel is normal throughout. The lumen contains semiliquid material. The mucosa is normal.

Large bowel: The serosa is normal. The lumen contains feces. The mucosa is normal.

The appendix is grossly normal.

Rectum and anus: The rectum is normal. The anus appears to have a small 1 x 1 cm lesion, possibly a condyloma.

Reticulo-Endothelial System: Spleen: The spleen weighs 221 gm (normal 125-195 gm). It is normal.

Lymph nodes: Lymph nodes in the mediastinum, abdomen and retroperitoneum are unremarkable.

Spine: The spine is normal.

Bone marrow: The thoracic and lumbar spine marrow is grossly normal.

GENITO-URINARY SYSTEM: Kidneys: The right kidney weighs 120 gm and the left 150 gm (normal male 125-170 gm). The capsules strip with ease to reveal dark red cortical surfaces without lesions. Serial slicing reveals no lesions. The cortices are 0.5 cm thick; the medullas 1.1 cm thick. The pelvis and calyces appear normal. The renal pelvic mucosa is normal.

Ureters: The ureters are normal throughout their length, measuring 0.3 cm in

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
 Printed Date / Time: 10/06/11 - 1304

Patient Account: 20005972-517
 Med. Rec. No.: (0160)224616N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 yrs DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00179

GROSS DESCRIPTION:

maximal external diameter. They are probe-patent into the bladder.

Bladder: The bladder is normal.

Prostate: The prostate is normal. Serial slicing reveals no lesions. The seminal vesicles are normal.

Testes: The right testis weighs 25 gm, and the left 23.2 gm (normal 20-25 gm). The cut surfaces reveal no lesions.

ENDOCRINE SYSTEM: Thyroid: The thyroid weighs 16.2 gm (normal 10-22 gm). The cut surfaces have no lesions.

Parathyroids: Two very small pieces of tissue were collected for sectioning as possible parathyroids.

Adrenal glands: The right adrenal gland weighs 4.8 gm and the left 7.6 gm (normal 5-6 gm). Serial slices in the transverse plane reveal no lesions.

BRAIN AND SPINAL CORD: The scalp, calvarium, base of the skull and dura mater are normal. The brain weighs 1530 gm (normal male 1200-1400). The gyri and sulci display a normal pattern without edema. The circle of Willis, basilar and vertebral arteries show no atherosclerosis. No indentation/herniation of the cingulate gyri, unci or molding of the cerebellar tonsils are noted. The brain is fixed in formalin for later examination by a neuropathologist (see neuropathology report).

SPINAL CORD: The grossly normal spinal cord is fixed in formalin for later examination by a neuropathologist.

PITUITARY GLAND: The grossly normal pituitary gland is fixed in formalin for subsequent examination by a neuropathologist.

Comment: All of the organs appeared to have varying degrees of decomposition.

Blood and vitreous samples were taken for toxicology and hydration status respectively. Samples of liver, kidney, heart, lung, and spleen, were frozen for potential further examination.

JTK/da
 08/30/11

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
 Printed Date / Time: 10/06/11 - 1304

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
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FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00179

MICROSCOPIC DESCRIPTION:

- All slides are stained with H&E unless otherwise stated
- NPC = No pathologic change
- (Autolysis) after a diagnosis means that post mortem decomposition compromised the assessment

VERTEBRA, slide 1: Bony trabeculae appear normal. Overall marrow cellularity is about 60%; ME ratio is about 3 to 1; all elements have normal maturation (autolysis)

RIGHT LUNG, slide 2: Focal necrosis without reaction around bronchioles consistent with agonal aspiration or post mortem aspiration. These areas also contain bacterial colonies (autolysis)

ADRENAL, LEFT, slide 3: Probably no pathologic change (autolysis)

TESTIS, LEFT, slide 4: No pathologic change

SKIN, PERIANAL, slide 5: No pathologic change

PANCREAS, slide 5: No pathologic change (autolysis)

SKELETAL MUSCLE, PSOAS, slide 6: Probably no pathologic change (autolysis and bacterial overgrowth). No evidence of rhabdomyolysis identified.

PARATHYROID, slide 7: Two lymph nodes with no pathologic change. No parathyroids seen.

THYROID, slide 7: Cannot assess due to peculiar change apparently due to post mortem bacterial overgrowth.

PROSTATE, slide 9: Probably no pathologic change (autolysis)

LIVER, slide 10: Cannot assess due to autolysis.

KIDNEY, RIGHT, slide 11: Cannot assess due to autolysis and post mortem bacterial overgrowth.

SPLEEN, slide 12: Cannot assess due to autolysis

HEART, LEFT, slide 13: Cannot assess due to autolysis and post mortem bacterial overgrowth.

JEJUNUM, slide 14: Probably no pathologic change (autolysis)

COLON, slide 15: Cannot assess due to autolysis

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-11-00179

MICROSCOPIC DESCRIPTION:

Toxicologic studies of blood were positive for Nortriptyline only, 294 ng/mL, which is in the therapeutic range.

Studies of vitreous fluid were unreliable because of postmortem decomposition (potassium level >14.0 MMOL/L).

LCS/da
09/23/11

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
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Patient Account: 20005972-517
 Med. Rec. No.: (0150)224518N
 Patient Name: ALVARADO, DANIEL
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Pathology Report

NEUROPATHOLOGY CONSULTATION

Neuropath Office (409) 772-2881

Autopsy No.: AU-11-00179

CLINICAL HISTORY:

The patient was a 44 year old Hispanic male TDCJ inmate with a past medical history of HIV and schizophrenia who was found unresponsive in his cell at 0920 on 8-20-11. The patient was taken to the hospital infirmary where he was found to have no pulse and no respirations and cardiopulmonary resuscitation was started. His skin was noted to be hot. Axillary body temperature taken at 0928 showed a reading of 105.2 degrees Fahrenheit. Ice packs were placed under his arms and on his back and legs. Emergency Medical Services arrived and transported the patient to Palestine Regional Medical Center where he was pronounced dead at 1029 on 8-20-11. A complete autopsy was done on 8-25-11 at the University of Texas Medical Branch.

PATHOLOGIST/RESIDENT: STOUT/KOSHY

GROSS DESCRIPTION:

Submitted for neuropathologic examination are brain (unfixed weight 1530 g), convexity dura, spinal cord with spinal dura (length 26.5 cm, conus medullaris and filum terminale present), and pituitary gland.

The dura is grossly unremarkable. There is no evidence of significant jaundice staining. There is no evidence of acute hemorrhages, subdural membranes, or masses. There is no evidence of thrombosis of the superior sagittal sinus.

External examination reveals the brain to be intact and normally developed with mild fibrous opacification of the convexity leptomeninges. There is no evidence of arachnoid hemorrhage, exudate, focal softening, discoloration, atrophy, or swelling. There is subjective fullness of the cerebellar tonsils, but no brainstem compression or uncal herniation. The major cerebral arteries have no significant atherosclerosis. The circle of Willis has a normal pattern, and no aneurysms or other malformations are identified.

The cerebral hemispheres are sliced coronally, revealing normal anatomic development and mildly dilated cerebral ventricles. The cortical ribbon is normal in thickness and appearance. The cerebral white matter is normally myelinated, but deep white and gray structures are poorly fixed. The gray-white junction is, however, distinct throughout. No focal lesions are identified in the hemispheres.

The brainstem and cerebellum are separated through the cerebellar peduncles, and the cerebellum is sliced sagittally and the brainstem transversely. Both structures are normally developed, and have normal pigmentation of substantia nigra and locus ceruleus. There is no evidence of gross lesions in these structures.

The spinal dura is opened anteriorly, revealing no evidence of extradural, subdural or arachnoid hemorrhage. The spinal cord is sliced transversely at

Patient Name:
 Patient Location:
 Room/Bed:
 Printed Date / Time: 10/06/11
 ALVARADO, DANIEL
 AUTOPSY
 Page: 1

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/25/11 0754
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NEUROPATHOLOGY CONSULTATION

Neuropath Office (409)772-2881

Autopsy No.: AU-11-00179

GROSS DESCRIPTION:

0.5 to 1 cm intervals, revealing normal development and no evidence of focal lesions. However, the entire cord is dusky in color and softer than usual for fixed CNS tissue, suggestive of advanced autolysis.

The pituitary gland is intact and normally developed, without external hemorrhages or other lesions. The horizontal cut surface reveals normal anterior and posterior lobes, and no evidence of internal lesions.

Photographs made during gross brain examination: none.

DICTATED BY: GERALD A. CAMPBELL, M.D., PATHOLOGIST
09/08/11

SECTIONS TAKEN:

B1: Pituitary gland; B2: Right frontal, area 8; B3: Right hippocampus; B4: Left basal ganglia; B5: Right cerebellum; B6: Spinal cord.

FINAL DIAGNOSES:

- A. Brain and cranial dura (weight 1530 g):
 - 1. Leptomeninges, convexity: Mild diffuse fibrosis
 - 2. Brain: Mild acute ischemic change and edema (weight, delayed fixation of internal structures, expansion of cerebellar tonsils, microscopic ischemic changes and vacuolation)
- B. Spinal cord and spinal dura (26.5 cm caudal segment):
 - 1. Spinal cord: Advanced autolytic changes (dusky coloration and softening) unusual for post-mortem autolysis
- C. Pituitary gland: No abnormalities

COMMENTS:

 The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409) 772-2858.

Patient Name:
 Patient Location:
 Room/Bed:
 Printed Date / Time:

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
 Date / Time Admitted: 08/25/11 0754
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Gross: 09/08/11
 Final: 09/16/11

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Pathology Report

GERALD A. CAMPBELL, M.D., PATHOLOGIST
 Division of Neuropathology
 (Electronic Signature).

Patient Name:
 Patient Location:
 Room/Bed:
 Printed Date / Time: **ALVARADO, DANIEL**
AUTOPSY
 Page: **10/06/11 - 1305**

Patient Account: 20005972-517
 Med. Rec. No.: (0150)224516N
 Patient Name: **ALVARADO, DANIEL**
 Age: 44 YRS DOB: 05/22/67 Sex: M Race: S
 Admitting Dr.: OUTSIDE TDCJ
 Attending Dr.: OUTSIDE TDCJ
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FINAL AUTOPSY REPORT

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Autopsy No.: AU-11-00179

CLINICOPATHOLOGIC CORRELATION:

The diagnosis of environmental hyperthermia was based on the postmortem axillary temperature of 105.2 F, and the lack of any other cause of death despite a complete autopsy and blood toxicologic studies.

LCS/LCS
10/05/11

L. CLARKE STOUT, M.D., PATHOLOGIST
L. CLARKE STOUT, M.D., PATHOLOGIST
10/06/11

(Electronic Signature)

Patient Name: **ALVARADO, DANIEL**
 Patient Location: **AUTOPSY**
 Room/Bed: -
 Printed Date / Time: 10/06/11 - 1304

Plaintiffs' MSJ Appx. 217

END OF REPORT

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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

STEPHEN McCOLLUM, and SANDRA §
McCOLLUM, individually, and STEPHANIE §
KINGREY, individually and as independent §
administrator of the Estate of LARRY GENE §
McCOLLUM, §
PLAINTIFFS §
§
v. § CIVIL ACTION NO.
§ 4:14-cv-3253
§ JURY DEMAND
BRAD LIVINGSTON, JEFF PRINGLE, §
RICHARD CLARK, KAREN TATE, §
SANDREA SANDERS, ROBERT EASON, the §
UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §
DEFENDANTS §

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 21

Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted: 08/06/12 1413

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Pathology Report

1797921

FINAL AUTOPSY REPORT

Autopsy Office (409) 772-2858

Autopsy No.: AU-12-00167

AUTOPSY INFORMATION:

Occupation: INMATE Birthplace: UNK Residence: TEXAS
 Date/Time of Death: 8/4/12 17:50 Date/Time of Autopsy: 8/8/12
 Pathologist/Resident: WALKER/VAN DELLEN Service: TDC CONTRACT
 Restriction: NONE

 The on-line version of the final autopsy report is abbreviated. If you would like a copy of the complete final report, or if you have any questions regarding this report, please contact the Autopsy Division Office, (409) 772-2858.

FINAL AUTOPSY DIAGNOSIS

I. Body As a Whole: Clinical history of hyperthermia (107 degrees Fahrenheit), hypotension, and coagulopathy consistent with DIC	C2
A. Brain: Diffuse cerebral edema with mild tonsillar herniation	A4
B. Lungs, bilateral: Edema and congestion (left lung = 940g, right lung = 840 g)	A4
1. Diffuse petechiae of the visceral pleura	A4
C. Lung, left: Early bronchopneumonia; focal chronic interstitial pneumonia	A3
D. Spleen: Geographic necrosis	A4
E. Kidneys, bilateral: Scattered cortical petechiae; no thrombi detected	A4
F. Mediastinum: Soft tissue hemorrhage	A4
G. Aorta, suprarenal: Patchy areas of adventitial hemorrhage	A4
H. Colon: 1L dark, red stool	A4
1. Patchy areas of mucosal petechiae and congestion	A4
II. Other Findings:	
A. Kidney, left: Simple cyst in the upper pole, 1.5 x 1.5 cm, with clear, yellow fluid	A5
B. Bladder: Muscular hypertrophy; patchy areas of mucosal congestion	A3
E. Liver: Mild steatosis	A5

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SEP 20 2012 Cm

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***TYPE: Anatomic(A) or Clinical(C) Diagnosis.
 IMPORTANCE: 1-immediate cause of death (COD); 2-underlying COD;
 3-contributory COD; 4-concomitant, significant; 5-incidental ***

Patient Name: ADAMS, RODNEY GERALD
 Patient Location: AUTOPSY
 Room/Bed: -

Printed Date / Time: 09/14/12 - 1007

Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted : 08/06/12 1413

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Pathology Report

FINAL AUTOPSY REPORT

Autopsy Office (409)772-2858

Autopsy No.: AU-12-00167

CLINICAL SUMMARY:

The decedent was a 46 year old white male, incarcerated at TDCJ, and in a holding barracks with 54 other inmates, awaiting transfer to the state penitentiary. On August 3rd, 2012, he was found by a security guard to be having a seizure, and was transported to Palestine Regional Medical Center. He presented to the emergency department unresponsive with a temperature of 107 degrees Fahrenheit, severe hypotension, and coagulopathy consistent with disseminated intravascular coagulation (DIC). He was transferred to East Texas Medical Center the same day, at 2352 hours, and in addition to the findings above, was noted to have metabolic acidosis and creatine kinase level of 1320 IU/L (normal 60 and 400 IU/L). As he remained unresponsive and in refractory shock, it was determined that further resuscitative efforts were futile. Given his poor prognosis, and with the consent of his mother, mechanical ventilation and pressor therapy were withheld. He was pronounced dead on August 4th, 2012 at 1750 hours, and a complete autopsy was performed on August 8th, 2012. The outside temperature of the holding cell taken at the time of the inciting event on August 3rd, 2012 was recorded to be 102 degrees Fahrenheit, with a humidity of 38%, and the ambient temperature was 91.6 degrees Fahrenheit. Based on the autopsy findings, it is our opinion that the cause of death was hyperthermia resulting in fulminant DIC and hypotensive shock. The manner of death is natural.

MVD/TW
09/06/12

Patient Name: ADAMS, RODNEY GERALD

Patient Location: AUTOPSY

Room/Bed:

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Continued....

Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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Date / Time Admitted : 08/06/12 1413

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FINAL AUTOPSY REPORT

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Autopsy No.: AU-12-00167

GROSS DESCRIPTION:

I. CLOTHING AND PERSONAL EFFECTS: None

II. THERAPEUTIC INTERVENTION:

- Endotracheal tube
- Nasogastric tube
- Left antecubital fossa area: catheter
- Dorsum of right hand: intravenous catheter
- Left 2nd digit: pulse oximeter
- Right femoral area: triple lumen catheter
- Rectum: Flexi-Seal catheter

III. EXTERNAL EXAMINATION

The body, identified by name on the right wrist band, right ankle band, and right toe tag, is that of a well-nourished adult 46 year-old Caucasian male, with a body length of 167 cm. Rigor mortis is present in all four extremities. The skin is white and intact, with red/pink and slightly blanchable lividity present in the forehead, anterior and posterior neck, and posterior thorax. Short, reddish/brown hair is present on the supraorbital ridge, anterior thorax, abdomen, and pubic area, and similarly-colored hair stubble on the scalp and chin. The sternal area is shaven, with four surrounding electrocardiogram pads. The calvarium is symmetric and intact to palpation, and the scalp is intact. The cornea are clear, the sclerae are white, and the conjunctivae are injected. There is hemorrhage of the sclera in the lateral corner of the right eye. The irides are blue, and the pupils are 0.4 cm bilaterally. Dentition is fair. The penis is circumcised, and the testicles are descended.

The following marks and scars are present:

- Left periorbital ecchymosis, spanning 2.5 cm inferiorly and 1.5 cm superiorly, measured from the lateral canthus
- Right anterior neck: 10.5 cm linear scar
- Right deltoid: tattoo of skull with the name "Harley Davidson"
- Right deltoid: puncture wound with surrounding ecchymosis
- Left anterior upper extremity: 5 cm area of scattered petechiae and ecchymosis
- Right posterior forearm: puncture wound
- Left posterior forearm: puncture wound with surrounding ecchymosis
- Right antecubital fossa: puncture wound with surrounding ecchymosis
- Left antecubital fossa: puncture wound with surrounding ecchymosis
- Sternal area: 8 cm x 5 cm area of patchy ecchymosis
- Right inguinal area: 4 cm x 3.2 cm and 1 cm x 1 cm dry, yellow scabs
- Right anteromedial thigh: 2 cm x 2 cm dry, yellow, scab
- Left inguinal area: 3 puncture wounds with surrounding dried blood and ecchymosis
- Left anteromedial thigh: 4 cm x 5 cm dry, yellow scab

Patient Name: ADAMS, RODNEY GERALD

Patient Location: AUTOPSY

Room/Bed:

Printed Date / Time: 09/14/12 - 1007

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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FINAL AUTOPSY REPORT

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Autopsy No.: AU-12-00167

GROSS DESCRIPTION:

- Left anterior leg: 2 blue punctate scars, 1 punctate scab, 1 scab measuring 1 cm x 0.5 cm
- Right anteromedial leg: 2 linear scabs measuring 0.5 cm each

IV. INTERNAL EXAMINATION

The body is opened using a Y-shaped incision to reveal a 5.0 cm panniculus and the thoracic organs in the correct anatomic positions. There is mediastinal soft tissue hemorrhage.

SEROUS CAVITIES: The pericardial space contains 48 mL of clear, red fluid. The right and left pleural spaces contain 100 mL and 150 mL clear, red fluid, respectively. The peritoneal space contains 50 mL clear, red fluid.

CARDIOVASCULAR SYSTEM: The heart weighs 352 g (normal 270-360 g). The left ventricular wall is 1.5 cm (normal 1.0-1.8 cm) in thickness at the junction of the posterior papillary muscle and free wall, with concentric hypertrophy. The right ventricle is 0.2 cm (normal 0.25-0.3 cm) thick, measured 2 cm below the pulmonic valve annulus, anteriorly. The cardiac valves are unremarkable. Valve circumferences measured on the fresh heart are: tricuspid valve 10.4 cm (normal 12-13 cm), mitral valve 10.2 cm (normal 10.5-11.5 cm), aortic valve 7.4 cm (normal 7.7 cm-8 cm), pulmonic valve 8.0 cm (normal 8.5-9 cm). There are no acute ischemic cardiac lesions identified. The endocardium is smooth, and the majority of the anterior surface of the heart is covered with epicardial fat.

The coronary arteries are dissected longitudinally, and no significant stenosis is observed. The posterior circulation is right dominant. The thoracic and abdominal aorta and major branches are intact. There is no embolus or thrombus observed in the pulmonary artery. There are moderate fatty streaks of the suprarenal aorta as well as patchy areas of adventitial hemorrhage, and moderate atherosclerotic plaques of the infrarenal aorta. The celiac, superior and inferior mesenteric, renal, and iliac arteries are normal. The superior and inferior vena cavae and portal vein are normal.

RESPIRATORY SYSTEM: The neck presents an intact hyoid bone as well as thyroid and cricoid cartilages. The larynx is composed of unremarkable vocal cords and folds, appearing widely patent without foreign material, and is lined by smooth, glistening membrane. The epiglottis is a characteristic plate-like structure, and grossly unremarkable. Both the musculature and the vasculature of the anterior neck are unremarkable. The trachea is in the midline, and its mucosa is mildly congested. The right lung weighs 850 g and the left 940 g. There are diffuse bilateral petechiae in the visceral pleura. Both lungs appear edematous with patchy areas of congestion.

GASTROINTESTINAL SYSTEM: The tongue has a finely granular surface and is

Patient Name: ADAMS, RODNEY GERALD

Patient Location: AUTOPSY

Room/Bed: -

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

Attending Dr.: OUTSIDE TDCJ

Date / Time Admitted : 08/06/12 1413

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Pathology Report

FINAL AUTOPSY REPORT

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Autopsy No.: AU-12-00167

GROSS DESCRIPTION:

unremarkable. The pharynx and esophagus are intact with diffusely congested mucosa. The stomach is intact and contains approximately 50 mL of dark green fluid, and is grossly unremarkable.

There are patchy areas of mucosal petechiae in the small bowel. The large bowel contains approximately 1 L of dark red stool. There is an area of dark, mottled discoloration in the serosa of the transverse colon. There are patchy areas of mucosal petechiae and congestion in the entire length of large bowel.

The appendix is present and grossly normal.

The surface of the liver is smooth, diffusely tan, and grossly unremarkable. Serial slicing reveals a smooth homogenous parenchyma.

The gallbladder and extrahepatic biliary tree are intact, and the gallbladder contains 35 ml of dark green bile, with an unremarkable mucosa. The cystic and common bile ducts are patent. Cholecystitis or lithiasis are not identified. The structures of the hepatic hilus are intact.

The pancreas has a normal conformation. The parenchyma is slightly autolyzed, tan, and there is patchy fatty infiltration. The major ducts are patent.

GENITOURINARY SYSTEM: The renal cortical surfaces have patchy areas of congestion and scattered petechiae. The capsules strip with ease. The right kidney weighs 180 g and the left 200 g. The right cortex and medulla are 0.6 cm and 1.2 cm, respectively, and the left cortex and medulla are 0.8 cm and 1.4 cm, respectively. There is a 1.5 cm x 1.5 cm simple cyst in the upper pole of the left kidney, which contains clear, yellow fluid. The renal columns of Bertin extend between the well demarcated pyramids and appear unremarkable. The medulla presents normal renal pyramids with unremarkable papillae. No calculi are observed. The renal arteries and veins are unremarkable.

The ureters are of normal caliber lying in their course within the retroperitoneum and are probe-patent into the urinary bladder. There are patchy areas of congestion in the urinary bladder mucosa, and mild hypertrophy of the bladder wall.

Prostate: The prostate is tan in color, and appears normal in size. Serial slicing reveals a uniformly smooth, tan surface.

Testes: The right and left testes weigh 13.9 g and 15.4 g, respectively (normal 20-25 g). The tunica albuginea are tan/white, smooth and glistening. The cut surfaces are tan/yellow, and the tubules string with ease.

HEMATOPOIETIC SYSTEM: The spleen weighs 180 g (normal 125 - 195 g). The cut surface reveals a dark red parenchyma with multiple patchy areas of pale

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Patient Location: AUTOPSY

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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GROSS DESCRIPTION:

discoloration consistent with necrosis.

ENDOCRINE SYSTEM: The thyroid gland weighs 15.5 g (normal 10-22 g), presenting two well-defined lobes with connecting isthmus and a beefy brown cut-surface. There is a 0.5 cm x 1.5 cm tan, circumscribed nodule in the parenchyma. The parathyroids are not identified. Adrenal glands are of normal shape. The right and left adrenal glands weigh 6.6 g and 6.5 g, respectively. Serial sectioning presents no gross lesions.

CENTRAL NERVOUS SYSTEM: The scalp is intact without contusions or lacerations. The calvarium is likewise intact without bony abnormalities or fractures. The brain weighs 1,520 g (normal 1200-1400 g). There is diffuse gyral flattening and mild tonsillar herniation. The brain is fixed in formalin for later examination by a neuropathologist.

SPINAL CORD: The spinal cord is fixed and formalin for later examination by a neuropathologist.

MVD/TW
08/14/12

Patient Name: ADAMS, RODNEY GERALD

Patient Location: AUTOPSY

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Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

Admitting Dr.: OUTSIDE TDCJ

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FINAL AUTOPSY REPORT

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Autopsy No.: AU-12-00167

MICROSCOPIC DESCRIPTION:

Note: All slides are stained with H&E unless otherwise specified.
NPC = No Pathologic change (autolysis) after a diagnosis means that post mortem decomposition compromised the assessment

Adrenals, slide 1: NPC

Testes, slide 2: Focal atrophy, otherwise NPC

Thyroid, slide 3: Multinodular, NPC

Lung, left, slide 4: Early bronchopneumonia; focal chronic interstitial pneumonia

Lung, right, slide 5: Congestion; hemosiderin-laden macrophages

Heart, left, slides 6-8: NPC

Heart, right, slide 9: NPC

Kidneys, slide 10: No thrombi detected (autolysis)

Liver, slide 11: Mild steatosis

Spleen, slide 12: Multiple foci of congestion

Duodenum, slide 13: NPC

Colon, slide 14: NPC

Prostate, slide 15: NPC

MVD/TW

09/07/12

Patient Name: ADAMS, RODNEY GERALD

Patient Location: AUTOPSY

Room/Bed:

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Patient Account: 20005972-517

Med. Rec. No.: (0150)1797921

Patient Name: ADAMS, RODNEY GERALD

Age: 45 YRS DOB: 10/02/66 Sex: M Race: C

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FINAL AUTOPSY REPORT

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Autopsy No.: AU-12-00167

CLINICOPATHOLOGIC CORRELATION:

Hyperthermia with a core temperature of 104 degrees Fahrenheit or greater can be life threatening, and may occur when the body produces an excessive amount of heat, cannot adequately dissipate heat, such as when exposed to extreme environmental temperatures. As the core temperature increases, there is an increase in metabolic rate and oxygen consumption. Enzymes are affected by changes in temperature, as these proteins require a certain temperature and pH range beyond which they begin to denature. Injury to the cell membrane occurs, and tissues begin to leak potassium into the circulatory system.

Rhabdomyolysis, or destruction of muscle tissue, can cause dangerous electrolyte imbalance, as well as release of myoglobin, which can have deleterious effects on the kidney. Vascular endothelium is particularly sensitive to hyperthermia, and when damaged, there is system activation of the clotting cascade, causing disseminated intravascular coagulopathy (DIC). When this occurs, there is depletion of platelets and other clotting factors in the formation of systemic microthrombi, which can damage delicate microvasculature, such as in the kidney. Multisystem organ failure ultimately occurs, and the decreased mean arterial blood pressure is inadequate to sustain perfusion to vital organs.

MVD/TW
09/06/12

DAVID H. WALKER, M.D., PATHOLOGIST

(Electronic Signature)

09/10/12

Patient Name: ADAMS, RODNEY GERALD

Patient Location: AUTOPSY

Room/Bed: -

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